at 4 1-2 feet. A lock full of water will therefore, contain (100 × 15 × 4 1-2=6750 cubic feet. We suppose that double locks in constant use will each be filled 100 times during the 24 hours. The daily expenditure then, of water on account of lockage will be (6750 cubic feet × 100 times × 4 locks =) 2,700,000 cubic feet.

The undersigned are aware, that this is not the usual mode of arriving at the expense of water due to lockage. Calculations are generally made of the number of locks full required for boats passing a lock alternately in opposite directions, and again when they pass in succession—the lock is supposed to be in readiness to receive the boat when she arrives, and then the reverse, &c. &c. from all which an average is deduced.

Deductions are sometimes made for the number of cubic feet displaced by the descending boat, (and in theory, very properly.) These calculations are frequently made with the same minuteness as tho' all the operations and movements upon a canal were as perfect as those of the most finished chronometer.

The canal goes into operation, and the expense of water is found to be double and often treble, to what it was on paper.—Why and wherefore, they who made the calculations are at a loss to determine; but if they will go upon the canal when in use, and observe closely every movement, not for an hour, nor for a day, but for months together, they will learn some of the causes of the difference between theory and practice; they will find, for instance, that wherever there are several short consecutive levels, as there will be at each end of any summit upon Parr's ridge, that there will always be a great loss of water to be supplied from the summit, in consequence of the irregularity of the passing of boats, and from the impossibility there is in attaining a perfect harmony of movement among all the lock keepers and which is essential to a correspondence of calculation with practice.

The undersigned are far from claiming that the mode of calculation they have adopted is free from error: they firmly believe however, from their own observations, that the result will not be found in excess.

2nd. Leakage of lock gates.

The leakage of each lock has been taken at 12 locks ful per day. This, for the double locks, at the two ends